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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,407	03/26/2001	Shr-Jie Tzeng	95-392	7234

20736 7590 08/18/2004

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EXAMINER	
NGUYEN, MIKE	

ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/816,407	TZENG ET AL.	
	Examiner	Art Unit	
	Mike Nguyen	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/14/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notices & Remarks

1. Claims 1-14 are pending for the examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2 and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (U.S. Pat. No. 6,526,057 B1).

As to claim 1, Lee teaches a method in a host channel adapter (see figs 1 and 2), the method comprising:

determining an order of receive work queue entries based on respective service levels, and outputting the serviced work queue entries according to the determined order (see fig. 3 element 22 col. 3 line 65 to col. 4 line 6);

generating, in a transport service module for each of the receive work entries according to the determined order, a corresponding transport layer header for corresponding transport data specified by each of the received work queue entries (see col. 4 lines 9-35);

generating transmit packets in the determined order and having the respective transport layer headers (see col. 4 lines 1-6); and

outputting each of the transmit packets based on the determined order (see col. 4 lines 1-6).

As to claim 2, Lee teaches the method of claim 1, wherein the determining step includes:

storing the received work queue entries in a work queue entry FIFO, each work queue entry specifying the corresponding service level (see col. 3 lines 54-64);

assigning each received work queue entry stored in the work queue entry FIFO to a corresponding selected one of a plurality of virtual lane FIFOs based on a prescribed service level-virtual lane mapping (see col. 3 lines 54-64); and

selectively outputting work queue entries from an identifier one of the virtual lane FIFOs based on a determined priority of the corresponding prescribed service level (see col. 3 line 65 to col. 4 line 6).

As to claim 8, Lee teaches the system of claim 1, further comprising: generating a header pointer that identifies a stored location of the corresponding transport layer header; and outputting to a post-link module a packet request that specifies the header pointer and a corresponding payload pointer that specifies a stored location of the corresponding transport data (see col. 4 lines 9-35).

As to claim 9, Lee teaches a host channel adapter (see figs 1 and 2) comprising:

a pre-link module configure for determining an order of received work queue entries based on respective levels, the pre-link module outputting the received work

queue entries according to the determined order (see fig. 3 element 22 col. 3 line 65 to col. 4 line 6);

a transport service module configured for generating transport layer headers for the work queue entries output from the pre-link module according to the determined order (see fig. 3 element 22 col. 3 line 65 to col. 4 line 35); and

a post-link module configure for generating, in the determined order, transmit packets having the respective transport layer headers for output onto a network (see col. 4 lines 1-6).

As to claim 10, Lee teaches the apparatus of claim 9, wherein the post-link module outputs the transmit packets on respective assigned virtual lanes based on a determined availability of respective flow control credits (see col. 4 lines 1-6).

As to claim 11, Lee teaches the apparatus of claim 9, wherein the pre-link module includes:

a work queue entry FIFO configured for storing the received work queue entries (see col. 3 lines 54-64);

a pre-link process module configured for mapping each of the received work queue entries stored in the work queue entry FIFO to a prescribe virtual lane based in the corresponding service level (see col. 3 lines 54-64);

a plurality of virtual lane FIFOs, each configured for storing work queue entries assigned to the corresponding virtual lane (see col. 3 lines 54-64); and

a virtual lane arbitration module configured for selectively outputting the work queue entries stored in an identified one of the virtual lane FIFOs based on a determined priority of the corresponding prescribed service level (see col. 3 line 65 to col. 4 line 6).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Kamiya (U.S. Pat. No 6,704,321 B1).

As to claims 3, 4 and 12, Lee fails to explicitly teach assessing a virtual lane arbitration table to determined the priorities for respective virtual lane FIFOs, an embedded processor virtual lane FIFO for embedded processor operations, and granting priority to the embedded processor virtual lane FIFO over the remaining virtual lane FIFOs. Kamiya; however, teaches assessing a virtual lane arbitration table to determined the priorities for respective virtual lane FIFOs, an embedded processor virtual lane FIFO for embedded processor operations, and granting priority to the embedded processor virtual lane FIFO over the remaining virtual lane FIFOs (see col. 4 line 57 to col. 5 line 50). I would have been obvious to a person of ordinary skill in the art to have the virtual lane arbitration and the embedded processor virtual lane FIFO in order to provide for indicating the predetermined output priority and for performing an output competition

control by selecting an output over the virtual lane FIFOs in accordance with a predetermined output priority.

6. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Iwama et al. (U.S. Pat. No 6,600,735 B1).

As to claim 5 and 13, Lee fails to explicitly teach storing, in a queue pair setup FIFO, queue pair commands received from a communication agent; and updating a queue pair attributes database based in the received queue pair commands. Iwama; however, teaches storing, in a queue pair setup FIFO, queue pair commands received from a communication agent; and updating a queue pair attributes database based in the received queue pair commands (see col. 23 lines 1-25). I would have been obvious to a person of ordinary skill in the art to have the queue pair attributes database in order to provide updating the attribute information and informing new attribute information.

As to claim 6, Lee teaches the method of claim 5, further comprising generating in the transport service module a management frame based on identifying a queue pair command specifying a transport service management operation (see col. 3 line 65 to col. 4 line 6).

As to claim 7, Lee teaches the method of claim 5, wherein the step of generating a transport layer header includes accessing the queue pair attributes database for transport layer header information (see col. 4 lines 9-21).

As to claim 14, Lee teaches the apparatus of claim 13, wherein the queue pair attributes management module outputs to the post-link module a packet request that includes a header pointer specifying a stored location of the corresponding transport layer header, and a corresponding payload pointer that specifies a stored location of the corresponding transport data (see col. 4 lines 9-35).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Nguyen whose telephone number is 703 305-5040. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Nguyen
Patent Examiner
Group Art Unit 2182

08/11/2004

JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100